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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,144	07/20/2004	Hendrik Dijkstra	NL020049	3436

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
LEE, KWOK W	

ART UNIT	PAPER NUMBER
2195	

MAIL DATE	DELIVERY MODE
02/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,144	DIJKSTRA ET AL.	
	Examiner	Art Unit	
	KWOK W. LEE	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

Figure 1a should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Construction

A process, thread, task or job were construed to be interchangeable in use as stated in applicant's specification on page 1, second paragraph.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The means for language used in the claims cannot be construed to be of physical objects but rather of software nature. Software

per se, is non-statutory subject matter because it is not a process, machine, manufacture, or composition of matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 5-6, 8, 10, 11, and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kush (US 6,874,144).

With respect to claim 1, Kush teaches a method of executing processes with different priorities in a multiprocessing environment comprising execution of a low priority process (T1) and a high priority process (T4) (Column 5, lines 60-66) where the high priority process (T4) and the low priority process (T1) share a given resource (SM4, 402') (Column 3, lines 64-column 4, lines 2), characterized in that the method comprising the step of: temporarily raising an effective priority of the low priority process (T1) when the low priority process (T1) is going to use the shared resource (SM4, 402') (Column 5, lines 57-61), where the effective priority is raised to be above a priority (Column 3, lines 55-60) of an other process (T1, T2) in the multiprocessing environment (Column 4, lines 2-10).

With respect to claim 2, Kush teaches the step of raising the effective priority comprises the steps of: executing/assigning an additional process (T3, T5) (Thread 26, see figure 2) accessing the shared resource (SM4, 402') on behalf of the low priority process (Column 7, lines 21-33) (T1) where the additional process (T3, T5) has a priority equal to the effective priority (It is inherent that the intermediate thread, used to access a shared resource, would have the same priority as the original thread since the original thread was given access at that particular time and should not be further delayed access), and where the additional process (T3, T5) is synchronised with the low priority process (T1) (Column 6, lines 10-20, it is inherent that a process would have to be synchronized with a thread within itself because a process would not function properly otherwise).

With respect to claim 5, Kush teaches that the effective priority is raised at least until the low priority process (T1) has accessed or used the shared resource (SM4, 402'), or the high priority process (T4) has accessed or used the shared resource (SM4, 402') if the high priority process (T4) attempts to access or use the shared resource (SM4, 402') while the low priority process (T1) has access or uses the shared resource (SM4, 402') (Column 7, lines 51-58, where the high priority process is the calling thread and the low priority process is holding the mutex or lock).

With respect to claim 6, Kush teaches that the effective priority of the low priority process (T1) is raised to be slightly below that of the high priority process (T4) (Column 10, lines 37-48).

With respect to claim 8, Kush teaches that the shared resource (SM4, 402') is selected from the group of: a shared memory (SM4, 402'), a shared file (SM4, 402'), and a shared input/output (I/O) device (Column 1, lines 32-36).

With respect to claims 10 and 13, 14 and 15, see above discussion regarding claim 1.

With respect to claim 11, see above discussion regarding claim 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kush (US 6,874,144) in view of Werres et al. (US 5,295,264).

With respect to claim 3, all of the limitations of claim 1 have been addressed above. Kush does not teach that the multiprocessor environment comprises a real-time operating system and a non-real time operating system running on a single processor at least at a given time, where the real-time operating system comprises said high priority thread (T4) and said additional process (T3, T5) and where the non-real time operating system comprises said low priority thread (T1). The Werres reference teaches a communications system with a real-time operating system and a subscriber operating system operating within a processor (Column 2, lines 47-64), where real-time tasks are

handled with the highest priority over all functions of the subscriber operating system. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have implemented Kush's priority inheritance scheme in Werres to manage real-time tasks in the real-time operating system as high priority tasks and subscriber operating system tasks as low priority tasks in the non-real-time operating system.

With respect to claim 9, all of the limitations of claim 1 have been addressed above. Kush does not teach that the high priority process (T4) executes time-critical tasks. However, real-time tasks are time-critical tasks and the Werres reference teaches that real-time tasks are of high priority (Column 2, lines 47-64). It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have implemented Kush's priority inheritance scheme in Werres to manage real-time tasks in the real-time operating system as high priority tasks and subscriber operating system tasks as low priority tasks in the non-real-time operating system so that real-time tasks can be performed in a real-time manner over lesser important non-real-time tasks. Also, see above regarding claim 3.

With respect to claim 12, see above discussion regarding claim 3.

Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kush (US 6,874,144) in view of well-known practices in the art.

With respect to claim 4, all of the limitations of claim 1 and 2 have been addressed above. Kush does not teach that the additional process (T3) and the low

priority process (T1) are synchronised using a first semaphore (S1A) and a second semaphore (S1B). However, as addressed above regarding claim 7, mutex's are held by threads to control shared resources. Mutex's are also referred to binary semaphores and was well-known in the art and Official notice of such is taken. Additionally, a process of the thread holding a semaphore could as well be accessing other shared resources with semaphores in order to make use of the combined shared resources together for a particular job. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have used a semaphore to access shared resources for a process and one for a thread within a process to make use of the combined resources held by the process as a whole for example, simultaneous disk and printer access.

With respect to claim 7, Kush teaches that access to the shared resource (SM4, 402') is controlled by a mutex (M) (Column 7, lines 20-33) whereby said additional process (T3, T5) will not wait for the low priority process (T1) as long as it owns the mutex (M) (It would be an inherent feature of a calling thread to not wait for the whole process in order to carry out its task).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Silen (US 5,333,319) and Johnson et al. (US 6,308,245) reference shows adjusting up or down of the priority of a task.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KWOK W. LEE whose telephone number is (571)270-

3557. The examiner can normally be reached on Mon - Thu and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Robertson can be reached on (571) 272-4186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. W. L./
Examiner, Art Unit 2195

/David L. Robertson/
Supervisory Patent Examiner, Art Unit 4113